

### **DETAILED ACTION**

Applicant's request for reconsideration ( see attached Interview Summary from November 20, 2008) of the finality of the rejection of the last Office action is persuasive and, therefore, the **finality of that action is withdrawn**.

### **Status of Claims**

Claims 1- 6 and 8 - 16 are active. Claim 7 is cancelled. Claims 17 - 25 are withdrawn.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1 - 5, 9 - 13 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Schiavone (US 2001/0034431) in view of Stouffer et al.( US 5,830,982).

Regarding Claims 1 – 5, 9 - 13 and 16 Schiavone disclosed method for producing polyester bottle resins with reduce acetaldehyde content( see [0094]), wherein:

i) polyester prepolymer obtain by melt polymerization has IV value in a range from 0.25 dl/g to about 0.40 dl/g – see abstract

ii) polyester prepolymer further polymerized by solid state polymerization to form polymer with IV of at least 0.7 dl/g – see abstract

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iii) particle size of treated polyester in a range from 1mm to about 10 mm – see claim 4

iiii) bottle perform formed from high molecular weight polyester – see claim 3

With respect to the shape of the polyester particles, claim 4 of Schiavone (referred to above) discloses that the polyester prepolymer is formed into chips.

It is noted that while chips, absent further elucidation, are not immediately envisionable as being "drop-shaped, ball-shaped or ball-like" as required in the present claims, however, it also worth pointing out that there is nothing by, or in, Schaivone that would technically prohibit fashioning a polyester into shapes other than chips. In fact, as will be discussed below, the polyester art recognizes that a variety of polyester shapes is known. Therefore, an obvious modification of Schiavone cannot be ruled out.

However, Stouffer teach, that ( see column 6, lines 35 - 45):" The shape of the crystallized PET may vary, and may be a film, ribbon, particles of various shapes etc. In one preferred embodiment, the PET is in the form of particles (or, more accurately, small discrete units, masses, or droplets in the case of molten PET). Crystalline PET in the form of particles is particularly useful in solid-state polymerization. Preferred forms and/or sizes for particles are spherical particles with diameters of 0.05 cm to 0.3 cm, hemispherical particles with a maximum cross section of 0.1 cm to 0.6 cm, or right circular cylinders with a diameter of 0.05 cm to 0.3 cm and a length of 0.1 cm to 0.6 cm".

Therefore, it would be obvious to one of ordinary skill to use spherical particles with diameter more than 0.05 cm and less than 0.3 cm as particles to conducting solid state polymerization per teaching of Stouffer in the process of obtaining polyester perform by method of Schiavone with reasonable expectation of success.

Regarding limitation of Claim 2 : polyester material in a form of pellets, chips or granules has to be heated up and melted (plasticized) by extruder or injection molding machine in order to process material by melt processing method - therefore limitation of claim 2 as " material is plasticized at least partially before and/or during its forming" inherently meet by any melt processing methods, including injection molding, blow molding and extrusion - see [0003] and [0005].

Regarding limitations of Claims 3-5 also see [0003] and [0005].

Regarding limitation of Claim 9 see Examples 7 and 9.

Regarding limitations of Claim 11: because specification did not provide sufficient guidance how ordinary skill should understand "approximately 100% of terephthalic acid" , that it will be understood as " **about** 100% of terephthalic acid" .

Also note, that use of "about" is warning that exactitude is not claimed but rather a contemplated variation. When there is no substantial or material difference in the product, and the difference is colorable, merely, there is in fact literal readability, if proper weight is given to the qualifying word "about" to amounts significantly lower or higher than the numerically claimed limitation. *Kolene Corp. v. Motor City Metal Treating, Inc.* (DC EMich) 163 USPQ 214.

Regarding Claims 11, 12 and 13 see Schiavone - [0021], [0023].

Regarding limitation of Claim 16 see Schiavone [0094].

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiavone (US 2001/0034431) in view of Stouffer et al. (US 5,830,982) as it applied to claims 1 - 5, 9 - 13 and 16 above and in further view of Yamada et al. (US 4,217,161).

Schiavone in view of Stouffer discloses method for production of polyester bottles, including step wherein perform is reheated to specific temperature range, but silent regarding preheating perform by microwave energy.

However, Yamada teach that microwave irradiator can be used for heating and maintaining parison (perform) at draw-molding temperature during blow molding process (see column 13, lines 59-64).

Therefore, it would be obvious to one of ordinary skill use microwave heater per teaching of Yamada in process of obtaining polyester bottle disclosed by Schiavone in view of Stouffer with reasonable expectation of success.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiavone (US 2001/0034431) in view of Stouffer et al. (US 5,830,982) as it applied to claims 1 - 5, 9 - 13 and 16 above and in further view of Smith et al. (4,482,586) combine with evidence given by Crawford, Roy J.; Throne, James L.; Rotational Molding: Introduction and Chapter 6; 2002.

Note, that limitation of claim 8 as " sintering" was understood in light of Applicant's Specification - see paragraph [0029] : "According to another preferred embodiment of the method in accordance with the invention, the forming occurs by **sintering** of the thus treated polyester material, with the polyester material being introduced into a mold and being formed by **sintering into a preform**. The introduction of the polyester material into the mold preferably occurs by gravitational forces, by **movement** by means of a conveying medium and/or **by inertia forces, especially by centrifugal forces**".

Thus, rotational molding, wherein powder or pellets introduced to rotated mold, distributed by **centrifugal forces** and **sintered** ( see Rotational Molding, Chapter 6, paragraph 6.12) meet limitation of Claim 8.

Schiavone in view of Stouffer discloses method for production of polyester bottles by blow molding or injection molding technique, but silent regarding sintering.

However, Smith teach that polyester container( bottle - see Fig.1) can be made by rotational molding ( see column 2, lines 62-66 and column 11,lines 4 - 10) and teach that in order to obtain 'good physical properties, it is desirable that orientation is imparted in various polyester layers" ( column 11, lines 9-12).

Note, that articles obtain by rotational molding process are free from orientation ( see Rotational Molding: Introduction, Table 1.2 on page 10).

Therefore, it would be obvious to one of ordinary skill modify process disclosed by Schiavone in view of Stouffer use rotational molding method in order to obtain bottle

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with no orientation and good physical properties as it taught by Smith combine with Crawford.

4. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schiavone (US 2001/0034431) in view of Stouffer et al. (US 5,830,982) as it applied to claims 1 - 5, 9 - 13 and 16 above, and further in view of Duh (US 2002/0026030).

As it was explained above ( see paragraph 1) Schiavone in view of Stouffer discloses production method of the polyester, comprising step of Solid State polymerization( SSP), but silent regarding specific steps as preheating time before of SSP process and specific features of apparatus used for SSP process as it claimed in claim 15.

However, Duh teach that "during preheating step granules of PET ( polyethylene terephthalate) becomes sticky because of the rapid rise of the temperature. Therefore, a preheater, which could be a fluid bed or agitated heat transfer unit, must provide agitation or forced motion to prevent agglomeration of PET granules" and " residence time in the preheater ranges from a few minutes to about 60 minutes, depending on the type of the preheater used"- see [0006].

Therefore, it would be obvious to one of ordinary skill to modify process disclosed by Schiavone in view of view of Stouffer and conduct preheating step, wherein residence time various in a range of several minutes per teaching of Duh depends of type of preheater unit used with reasonable expectation of success.

Regarding limitation of Claim 15 see Duh Fig.2 and paragraph[0040], wherein Duh provide description of discharging means as fluid bed with perforated deck, comprising gas flow in order to heat up or cool polyester granules.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-6 and 8-16 have been considered but are moot in view of the new ground(s) of rejection.

5.1. In addition, arguments related to rejection of Claim 11, particularly limitation "approximately" note, that because specification did not provide sufficient guidance how ordinary skill should understand "**approximately 100%** of terephthalic acid", that it will be understood as "**about 100%** of terephthalic acid", which generally means plus or minus 10% from the point - in this case it will constitute the range from 90wt% to the 100wt.% of terephthalic acid.

Also note, that use of "about" is warning that exactitude is not claimed but rather a contemplated variation. When there is no substantial or material difference in the product, and the difference is colorable, merely, there is in fact literal readability, if proper weight is given to the qualifying word "about" to amounts significantly lower or higher than the numerically claimed limitation. *Kolene Corp. v. Motor City Metal Treating, Inc.* (DC EMich) 163 USPQ 214.

Because applicant did not provide any arguments against this understanding of term "**approximately**" than rejection based on understanding of this term ( see above) is proper and sound.

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In addition note, that. ..." A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including **nonpreferred** embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention).

"Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments." *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. MPEP 2123

Polyester of Schiavone must include at least 7 percent of comonomer as a sum of diacid and diol comonomers ( see Abstract) , therefore any composition that satisfied this requirement are disclosed by Schiavone, including those that claimed by Applicant.

For this reasoning second argument provided by Applicant is not persuasive.

5.3. Applicant's arguments related to Claims 14 and 15 based on statement that Duh teaches away from Applicant invention of using short preheating time, because "PET granules become sticky because of rapid rise of polymer temperature".

As it was explained in previous rejection, mailed on July 3, 2008, Duh teach that "during preheating step granules of PET ( polyethylene terephthalate) becomes sticky



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because of the rapid rise of the temperature. Therefore, a preheater, which could be a fluid bed or agitated heat transfer unit, **must provide agitation** or forced motion to prevent agglomeration of PET granules" and" residence time in the preheater ranges from a few minutes to about 60 minutes, depending on the type of the preheater used"- see [0006].

It is clear, that Duh recognized possibility that granules will stick together and provide solution how overcome this problem by teaching that granules must be agitated. Therefore, Duh is not teaching away from fast heating of granules, but actually provide guidance to one of ordinary skill how to perform with benefit of rapid rise of the temperature ( short residence time and higher output). Also note, that range of preheating time taught by Duh is overlapping with range claimed by Applicant. Therefore, all Applicant's arguments were found unpersuasive.

### ***Conclusion***

#### **THIS ACTION IS NOT MADE FINAL.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GENNADIY MESH whose telephone number is (571)272-2901. The examiner can normally be reached on 10 a.m - 6 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272 1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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